points at the nephroprotective effect of KATP channels activation with Flocalin predominantly in the proximal part of the nephron.

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CHRONORHYTHMOLOGIC FEATURES OF LIPIN ON ANTIOXIDANT PROTECTION INDICATORS IN RATS WITH MODEL PATHOLOGIES

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Any biological system of the organism is subjected to the natural functioning organization. Renal function has a conspicuous circadian periodicity. Thus, circadian rhythms of biochemical parameters in organs and tissues are indicators of the body state, including kidneys. Many pathological processes are accompanied by a violation of the temporal organization of physiological functions, which is also characteristic of the pathogenesis of the acute renal failure development.

The aim of the given study was to establish chronorhythmic indicator changes of antioxidant protection of renal tissues under the conditions of model pathology with a single injection of lipin.

The experiments were conducted on 21 adult outbred white rats, weighing 120-160 g. Acute renal failure was caused by intramuscular administration of 50% glycerol solution at a dose of 10 mg/kg. Lipin was administered at a dose of 500 mg/kg once intraperitoneally in 40 min after administration of glycerol. To perform biochemical studies, kidney tissue was collected after decapitation of rats for the 12th hour of the experiment with a 6-hour interval: 4 times a day - at 8 am, 2 pm, 8 pm and 2 am.

Antioxidant effects were evaluated by the content of lipid peroxidation products (malondialdehyde (MDA)) and proteins (protein oxidation products (POP)).

The obtained data on MDA content in the animal kidney tissues with model pathology reached a minimum value at 8 pm and a maximum one at 2 am, which was 1.6 times higher than control group and remained high at 8 am. Lipin reduced the MDA content on the background of acute renal failure by 1.3 times during the period of its maximum value by 2 hours, and at 8 am the effect of the drug reduced the MDA content by 1.2 times. The POP content reached its peak in the affected animals at 8 pm (1.3 times) compared with the control group. Lipin with a single injection had the greatest effect (in 1.4 times) on the intensity of the POP formation at 8 pm.

Thus, in animals with model pathology there were changes in the structure and nature of circadian rhythms that characterized antioxidant protection. The correction of model pathology by lipin should be noted to enhance since 8 pm till the end of the experiment.

Therefore, the treatment of acute renal failure should be prescribed taking into account the rhythm of antioxidant protection processes and the use of antioxidant drugs is recommended mainly in the afternoon.

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HISTOLOGICAL CHANGES IN THE KIDNEY STRUCTURE IN THE DYNAMICS OF FEVER DEVELOPMENT

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Fever is a typical pathological process characterized by a shift of the thermoregulatory reference point to a higher level of body temperature regulation due to the influence of pyrogenic substances. Fever development includes three stages: rising of temperature, maintenance of high temperature and decrease in body temperature.

The aim of our experiment was to study the histological changes the kidney structure in the dynamics of fever development and detect the mechanisms of damage to nephrocytes of the kidney cortex, medulla and papilla in conditions of the fever development.

Research was conducted on 60 non-linear white male rate weighting 130-180 g, maintained under the standard vivarium conditions with a constant temperature and humidity. Aseptic fever was induced according to recommendations by a single subcutaneous injection of pyrogenal at a

dose of 25 μg/kg. During development of the fever, rectal temperature was measured every 30 min. Animals were withdrawn from the experiment 24 h later, while blood, urine and kidneys were sampled for biochemical and histopathological assessments. Statistical processing of the obtained data was performed using the SPSS Statistics 17.0 software.

According to obtained results, in the first stage of fever, heat production predominates over heat transfer, which in pathogenesis is actually the effect of low temperature and is accompanied by the activation of the sympathetic and renin-angiotensin systems, respectively. This explains the decrease in GFR. The increase in protein excretion in the urine in the first stage of fever is due to the ischemic effect of angiotensin 2 on the cortical region of the kidneys, where localized proximal tubules responsible for protein reabsorption. Fibrin filaments were deposited at the site of destroyed nephrocytes, which was detected during Slinchenko staining as a small-focal character of changes in the properties of proteins with a shift in color to red. In the second stage of fever, the body temperature reaches the level of a new reference point, heat production is balanced with heat transfer, and fever performs its biological role. This normalizes the activity of the renin-angiotensin system, which was increased in the first stage of fever, resulting in increased GFR and there is an expansion of the capsule Shumlyansky-Bowman. Inhibition of distal reabsorption of sodium ions with dystrophic changes in the epithelium of the tubules of this nephron is due to energy deficiency of the kidneys, because the energy of ATP in the second stage of fever is used to ensure its biological role. Inhibition of proximal reabsorption of sodium ions and insignificant dystrophic changes of the epithelium of the proximal tubules in the third stage of fever decrease in temperature with predominance of heat transfer over heat production due to hypoxia of the kidneys due to blood clotting due to intense sweating.

With the development of aseptic fever on white nonlinear male rats with hyponatrium diet found: in the first stage (temperature rise) vacuolar dystrophy of the epithelium of the proximal tubules and small-focal nature of changes in the properties of proteins with a shift in color to red (standing) high level) expansion of the lumen of the Shumlyansky-Bowman capsule and dystrophic changes in the epithelium of the distal tubules, in the third stage (decrease in temperature) moderate expansion of the lumen of the Shumlyansky-Bowman capsule and insignificant dystrophic changes in the epithelium of the proximal tubules. Morphological disorders in the dynamics of the development of fever reflect the nature of changes in renal function.

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THE EFFECT OF THIOCETAM ON THE EXCRETORY FUNCTION OF THE KIDNEYS UNDER THE CONDITIONS OF BLOCKADE OF PROSTAGLANDIN SYNTHESIS

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It is known that prostaglandins (PG), namely, eicosanoids, that synthesized in kidney cells as natriuretic (PG E) and sodium delays (GHG F2a), take a direct part in the regulation of renal circulation and kidney function.

The purpose of the paper was to conduct a series of experiments against the background of inhibition of prostaglandin.

We studied 18 male rats, which were divided into 3 groups: with and without thiocetam 250 mg/kg (control group) and with indometacyn 100mg/kg. An experimental and case-control design was used. Biochemical methods were used in the study of blood and urine. Renal sodium transport was calculated after 2 hours, taking into account body weight. Kidney function was estimated at 5% including by weight of water.

According to our results, the inhibition of prostaglandins by indomethacin in rats reduces diuresis by 30%, inhibition of prostaglandins by indomethacin in rats reduces glomerular filtration rate by 1.7 times, the concentration of sodium ions in blood plasma was decreased by 30%, plasma creatinine concentration was also decreased (from71,3+2.83μmol/l to 61.8+1.25μmol/l, $P<0,01$), as well as decreased renal excretion (from 2.4+0.09μmol/2h in control up to 1.2+0.04 μmol/2h in the experiment, $P <0,01$).