

URIC ACID CONTENT IN BLOOD SERUM AND TISSUES OF RATS UNDER SUBCHRONIC STRESS

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Introduction. The prolonged stress leads to the hormonal disbalance and, as a result, to the tissue metabolism disorders, energy deficiency, and reactive oxygen species (ROS) formation. There is an evidence that hyperuricemia can be one the confirmation of the insulin resistance (IR). So, the hyperuricemia in hypertensive patients is the feature of IR and associated with increased cardiovascular morbidity. The **aim** was to study UA content in blood and tissues in rats under the subchronic stress.

Materials and methods. Rats were divided into two groups: intact animals and animals that were exposed prolonged neuromuscular tension by daily immobilization on the belly for 3 hours during 21 days, which were decapitated on the 8th, 15th and 22nd day. In blood serum, liver and kidneys homogenates were determined UA content.

Results and discussion. UA blood serum concentration was already increased on the first week of experiment in 1.5 times finishing almost in twice elevation. The most significant rise was observed in the liver tissue UA content particularly on the 8th day (in 2.5 times). The changes in UA content in kidneys were not so vivid, but more prolonged keeping the elevation in 1.2 times to the 22nd day. Consequently, kidney UA content increase may be a result of UA excretion inhibition in kidney tubules. UA accumulation might have different consequences: on the one hand, this compound has antioxidant properties, on the other – its formation involving xanthine oxidase leads to the generation of free radicals. Also, consider that increasing the UA content causes endothelial damage that is common for patients with diabetes and hypertension and plays a role in the development of atherosclerosis. However, the increase in UA formation should be accompanied by the oxidative stress progression because of increased activity of the purine degradation key enzyme – xanthine oxidase, which is considered as one of the main sources of ROS accumulation. In spite of some UA antioxidant properties, xanthine oxidase activation is believed to shift the balance in the pro-oxidant-antioxidant system.

Conclusions. UA accumulation in rat tissues that significantly pronounced under repeated stress can be considered as one of the indices of IR, which accompanied repeated stress and in turn is additional risk factor for aterogenesis and cardiovascular system diseases.