

EFFICACY OF QUERCETINE IN ACUTE TOXIC DAMAGE CAUSED BY COMPOUND WITH ALKYLATING PROPERTIES

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It is known, that increase of cAMP concentration under the action of pathogenic factors reflects one of the central adaptive cell mechanisms, which decrease the lesions of hepatocytes and restore the integrity of the liver of experimental animals. It allows to use drugs regulating level of cyclic nucleotides in pathology of liver.

A purpose of this research is investigation of Quercetine influence upon the level of cAMP and cGMP in organism of experimental animals in acute toxic lever damage by volatile components of epoxy resin mark ED-20 (ER).

Experiments were performed on whitemale Wistar rats. Acute toxic liver damage was induced by single four-hour inhaled dynamic influence with volatile components of ER in concentration $1/3 LC_{50}$ (120-140 mg/m³ by epichlorohydrin). Quercetine was administered into the stomach in a dose of 350mg/kg (ED₅₀) behind three hours prior to intoxication and in 5 minutes after its termination.

It was shown, that twofold reliable increase of cAMP level is occurred in 6 hours after removal of rats from the chamber. Further, the concentration of this messenger is sharply decreases and reaches the level of intact animals in 24 hours. In 72 hours, cAMP concentration became in 3.5 times less than cAMP level of intact animals. Unlike cAMP, cGMP concentration in hepatocytes was decreased on 73 and 54% (in 6 and 24 hours respectively). But in 72 hours, it was increased on 97%. In comparison with intact animals, an usage of Quercetine is accompanied by the increase of cAMP concentration on 357, 87 and 15% respectively in 6, 24 and 72 hours. In comparison with control, an administration of the investigated bioflavonoid is accompanied by the enhancement of cAMP level on 123, 94 and 305% respectively. Quercetine's action also results in the increase of cGMP level in hepatocytes: in 24 and 72 hours – on 60 and 263% concerning to intact animals and on 252 and 85% concerning control group of animals. In 6 hours, this index was less on 10 and 120% appropriately mentioned groups.

Thus, influence of volatile components of ER upon organism leads to phase changes in cAMP/cGMP system. The liver level of cAMP increases in the initial period after intoxication. But it is reduced in the later stages of pathologic process with development of relative abundance of cGMP-dependent processes. Under Quercetine influence, both the prolonged increase of cAMP concentration and increase of cGMP level (comparatively with the both control and intact animals group) develop in liver.