ACTIVITY OF HEPATIC PYRUVATE KINASE AND PEPCK IN FASTED RATS DURING THE ACCLIMATION TO HYPERTHERMIC ENVIRONMENT

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The goal of this work has been to observe the effect of acclimation to hyperthermic environment on the activity of hepatic pyruvate kinase (PK) and phoshoenolpyruvate carboxykinase (PEPCK) and liver glycogen content in 4 days fasted rats. Adult white Wistar female rats were used for this experiment. The experiment was conducted on four day-fasted rats. The experimental animals were divided into 6 groups (fasted rats - 0+4, 3+4, 10+4, 17+4, 26+4 and 56+4 days) depending on the time of the exposure to heated environment. Control groups were kept at room temperature (20±2°C). The heat-acclimation was performed in special heated chamber with regulated temperature of 35±1°C and air humidity of 20-30%. Animals were narcotized with ether narcosis. Liver pieces were frozen in liquid nitrogen. In fasted rats, the activity of hepatic PEPCK and glycogen content are significantly decreased regardless of duration of exposition to high environmental temperature. These positive correlation with time of exposition is proved with significant coefficient (r=-0.798 for glycogen content and r=-0.904 for PEPCK). During acclimation to heat temperature, the PK activity are increased (r=0.845). The reduced glycogen content is associated with declining of the PEPCK activity (r=0.620) and increasing of the PK activity (r=-0.614). In whole experimental period, the multiplicative regressive analyses show significant dependence between changes in activity of PK and PEPCK (r=-0.749). The decreased activity of hepatic PEPCK and liver glycogen content and the increased activity of PK in fasting conditions, imply that in heat-acclimated rats processes of gluconeogenesis are decreased and glycolysis are increased.

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